

Operating Reserves Work Group – February 6, 2003 & March 13, 2003

Flexibility Small Group (Items 2, 3 & 4)

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and

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The Small Group tasked with drafting proposals to address Operating Reserve Items #2, #3 and #4, nicknamed the Flexibility Small Group, met from 15:45 to 16:45 on February 6, 2003 and from 13:30 – 15:30 on March 13, 2003. This document summarizes the discussions at both meetings as well as some related points made at the Operating Reserves Work Group meetings.

- There was consensus that any proposals should reference the existing Operating Reserves – Spinning and Supplemental Services Business Practice. Given that the business practice posted on August 17, 2001 is still in effect even though BPAT posted a draft revision on August 14, 2002, the Operating Reserve Work Group will need to consider both documents. Ultimately, one of the objectives of the Operating Reserve Work Group will be to help BPAT finalise revisions to its Operating Reserves Business Practice.
- Flexibility issues should be classified according to the type of change that is sought:
 - Modification or Clarification to Existing Business Practice;
 - Creation of a new Business Practice;
 - Change specifications for BPAT's current computer programs;
 - Technical Requirements for BPAT's future computer programs;
 - Change Rate Design in future;
 - Change Tariff in future;
 - Document the issue for future resolution;
- Customers had identified four areas of flexibility that they would like to explore:
 1. Election periods that are shorter than one year;
 2. Allowing multiple Operating Reserve Suppliers for each TCH;
 3. Allowing generators to self supply supplemental reserve;
 4. Allowing interruptible energy exports from the BPAT control area;

The small group discussed the first two issues on February 6 and the last two issues on March 13.

- At the work group meeting on February 6 Rick Pascal had suggested three principals for all parties to keep in mind when considering proposals. They are resummarized here as they provide a helpful frame of reference for subsequent proposals.

All system and business practice changes should reflect:

- Cost consciousness;
- Enhanced flexibility;
- Ease of Administration for customers and BPAT.

1. Election periods that are shorter than one year:

- BPAT & BPAP stated that qualified customers are free to self-supply or choose a 3rd party supplier, however, if they do then BPA expects them to do so for a full year. Given that BPAP has committed to an annual Operating Reserves rate, it does not want to see cherry picking (i.e. a TCH self-supplying in the months when it is economic and then falling back on the BPA system during the uneconomic months);
 - Question: Given that the time required to establish the ability to dynamically schedule operating reserve energy can stretch over several months and could result in the October to September window being missed, why not let customers self-provide or 3rd party supply operating reserves with three months notice provided they commit to doing this for a minimum of 12 months?
- Issues associated with shorter election periods are summarized below:
 - Given that TCH bills are prepared monthly with RODS, it would probably not make sense to consider election periods shorter than one month;
 - Given the need to train scheduling staff on changes to the way operating reserves will be supplied and the number of accounts that need to be built in the existing RODS system, the administrative costs associated with RODS could probably not be justified for election periods shorter than 3 months;
- If customers want monthly or quarterly election periods then they should identify this as a need in 2003 so that the rate design and tariff proposals for the F2006 rate case can be developed to address this need. It would also be necessary to ensure that the new Scheduling System will support shorter election periods.

Short Term Focus:

Action Item: Customers who are interested in either self-supplying or becoming a qualified 3rd party supplier of Operating Reserves are encouraged to approach BPAT before 31 March 2003 as there could be synergies for BPAT to set up several self suppliers or 3rd party suppliers at once.

Long Term Focus:

Action Item: Brainstorm on how Ancillary Services can be tracked when the Tag becomes the schedule.

Action Item: Customers should develop a white paper on what sort of election period options they will want in the future.

Action Item: Discussion with BPAT on how TBL's future systems will permit customers to self-supply or 3rd party supply Operating Reserves.

2. Allowing multiple Operating Reserve Suppliers for each TCH:

- BPAP was primarily concerned that TCHs who elect to have a 3rd party do so for the full 12 month period (Oct – Sep). Provided that qualified and reliable 3rd parties were involved, then BPAP was not concerned if a TCH had more than one Operating Reserve Supplier;
- BPAT wanted clarification on whether customers envisaged having multiple suppliers over the course of 12 months, or whether they wanted to have multiple suppliers during a given month:
 - BPAT's sense was that the administration required to build and manage all the accounts associated with multiple 3rd party suppliers in a given month would be very onerous;
 - BPAT thought that it might be possible with the current RODS system to allow a TCH to change the 3rd party once a quarter.
- Given BPAT's sense that it may be able to accommodate quarterly changes to the qualified 3rd party supplier who is supplying operating reserves for a particular TCH, the following proposal was suggested:
 - A Transmission Customer who elects to have a 3rd party supply operating reserves may change its 3rd party supplier at the start of each quarter (i.e. Oct 1, Jan 1, Apr 1 and Jul 1) provided it gives 3 months notice and it identifies another 3rd party supplier of Operating Reserves who has already been approved by BPAT.

Short Term Focus:

Action Item: Draft proposed changes to the current Operating Reserve Business Practice to reflect this new flexibility (proposed changes are shown at the end of this summary document).

Long Term Focus:

Action Item: Discuss with BPAT what the practical limits are for the new scheduling & billing systems on the number of 3rd party suppliers that a TCH could contract with in any given month

3. Allowing TCHs to self-supply only supplemental reserves:

TBL's current Operating Reserve Services rate has two components: spinning reserves and supplemental reserves. Given that many thermal resources are able to provide 10 minutes reserves within established reliability guidelines (i.e. a GE clutch on the Big Hannaford project would allow TAU to meet WECC MORC requirements for 10 minute reserves) prompted the question as to whether generators could self-supply supplemental reserves, thereby reducing their operating reserve capacity charge in half.

BPA TBL & PBL had several comments:

- Given that BPA current meets its supplemental reserve obligation with spinning reserves, it is not clear how operating reserve services could be separated into spinning and supplemental components in the near future;
- PBL quoted rates that show the price of spinning and supplemental reserves to be equal. If it had been contemplated that the two components could be separated then they would probably have quoted different prices;
- Ignoring excess available spinning reserve in preference for idle supplemental reserves would likely be costly and recovery performance following system disturbances would likely suffer;
- Not clear with the current scheduling system would track one supplier for spinning reserve capacity and a different supplier for supplemental reserve capacity.

The general sense was that this flexibility could not be incorporated into the current business practice. It may be possible to include this flexibility in future business practices, however, it would be necessary to review a more comprehensive proposal.

Long Term Focus:

Action Item: Draft a proposal on how thermal generators could supply the 3.5% non-spinning component of their Operating Reserve within 10 minutes and then acquire the 3.5% spinning component from BPA so that this issue can be considered for the next rate case.

4. Allowing interruptible energy exports from the BPAT control area:

This issue was discussed on March 13 at the Flexibility Small Group meeting.

Powerex (Gordon Dobson-Mack) presented a draft proposal on exporting interruptible energy from the TBL control area which is shown below.

Scheduling System Changes:

- Set up special interruptible energy accounts in RODS between Powerex and the generators in the BPA control area. The account pointers would be set showing that Powerex would be supplying the reserves and that the associated Contingency Reserve Obligation for BPA is 0% of the schedule.
- E-tags to be flagged to show the schedule as interruptible as this will ensure that the BCH AGC automatically adds 100% of the schedule to its control area CRO;

AGC System & Operating Procedure Changes:

- Following a contingency within the BPA control area, BPA can curtail part or all of interruptible schedule at the BPA dispatcher's option via a phone call;

Billing System Changes:

- Billing system would automatically see that Powerex/BC Hydro is supplying the operating reserve capacity associated with these interruptible schedules, hence there would be no capacity bill;
- Billing System would charge Powerex's account whenever the generator that it bought interruptible energy from was forced out of service. Powerex would then recover this charge from the generator;
- Following a BPA curtailment of part or all of the interruptible schedule Powerex would be paid the day-ahead Mid-C HLH or LLH index for the energy that was curtailed.

BPA staff had several questions and comments:

- Not clear under what circumstances this would apply and not clear when a customer would choose this option instead of self-supply given that the Energy Settlement terms are essentially the same as those for self-supply customers;
- TBL is not interested in having access to new capacity reserves because BPA has surplus Operating Reserve capacity of its own;
- Interruptible exports imply that when the generator is forced out of service that the interruptible export would be cut. Consequently, BPA has assumed in its business practice that the communications required to establish a dynamic schedule between a generator selling interruptible and the sink control area would be established. However, the cost of the necessary communication systems make individual dynamic schedules with all the generators in BPA's control area uneconomic;
- Slice customers are not allowed to change their schedules mid-hour, hence they would not be allowed to sell interruptible energy;
- A generator that sold "interruptible energy" to Powerex could be subject to energy imbalance charges if the interruptible export was not immediately cut following a forced outage of the generator;

- Not clear how a generator that has multiple TCH's could sell both firm and interruptible energy;

The essence of the proposal was to transfer the Operating Reserve Capacity Obligation from TBL's control area to the sink control area, thereby avoiding TBL's Operating Reserve Capacity charge. However, as the current scheduling system does not allow for interruptible schedules to be cut mid-hour and the expense that would be involved in arranging dynamic scheduling capability between generators in the BPA control area and BC Hydro an alternative solution was proposed for handling Operating Reserve energy. The Powerex proposal was an attempt to balance cost and ease of administration in a way that did not compromise reliability.

At the end of the discussion it was clear that it would make more sense to self-supply or 3rd party supply operating reserves according to TBL's current business practice than try to import interruptible energy from the BPA control area given TBL's current scheduling and billing systems.

In the future it would be nice if the new BPAT scheduling system could identify interruptible export schedules from a specific generator in the BPA control area (i.e. new generator undergoing commissioning tests), recognise that no additional operating reserves are required for these export schedules and be able to process cuts to these schedules mid-hour.

Long Term Focus:

Action Item: Discuss with BPAT whether the new Scheduling and Billing Systems will track interruptible schedules and if it will be possible to curtail interruptible exports mid-hour in the future.

Action Item: Discuss with BPAT whether the new Scheduling and Billing Systems will track interruptible schedules and if it will be possible to terminate interruptible exports mid-hour in the future;

Action Item: Identify potential generators with the BPAT control area that would be interested in selling interruptible energy.

Issues that have been raised during Operating Reserve discussions:

- *How to ensure that BPA is able to calculate the incremental ORO supplied by a 3rd party for both real time and prescheduled schedules?*
 - RODS can handle this complexity already if the pointers in the accounts are set up correctly;
 - Will need to confirm when the Operating Reserve Group meets with the BPAT scheduling system programmers that the new scheduling system will handle this issue correctly.
- *Election Period: What is the shortest election period that would be practical given that the suitable accounts with correct pointers would need to be set up?*
 - This issue is discussed above under Item 1. One year is the minimum time that a customer could elect to self-supply or have one or more 3rd parties supply its Operating Reserve Obligations. Shorter election periods may be considered in subsequent rate periods.
- *Must a TCH have all of its resources within the TBL control area supplied by a 3rd party, or would it be possible to have more than one 3rd party supplier provided that the proper accounts were set up?*
 - This issue is discussed above under Item 2. Multiple, concurrent 3rd party suppliers would be very difficult to administer with the current RODS system. Need to investigate if this would be difficult to administer with the new scheduling system.
- *How to ensure a firm transmission path exists between the Operating Reserve Source and the TBL control area?*
 - A firm transmission demand account would be set up by BPAT in the RSPP to ensure that a firm path exists between the Operating Reserve Source and the BPA Network.
- *Would an E-tag need to be issued after operating reserve is dispatched from an adjacent control area?*
 - Under the current BPAT procedures an E-tag would not be issued. However, when operating reserves are dispatched schedules for the integrated amount of energy that was sent would need to be entered after-the-fact and the appropriate Net schedules corrected.
- *Why does TBL have to be the clearing house for all operating reserve energy transactions?*
 - The billing system is set up currently to credit and charge the TCHs for all operating reserve transactions, and as a result it will be up to the TCHs to settle with the generators that were forced out of service.
 - It would be worthwhile exploring with the programmers for the new scheduling system if the credits and charges for operating reserve energy could be streamlined (i.e. BPAT pay the 3rd parties supplying operating reserve directly, similarly it would directly charge generators in its control area that have been forced out of service)
- *How to handle false dispatch requests for Operating Reserve?*
 - It has not yet happened, however, if it did then the costs would be passed on to the generator that trigger the request for Operating Reserves.

- *How to handle non-response from a 3rd party to an Operating Reserve dispatch?*
 - “Six failures to meet performance standards will be grounds for termination for the self-supply provisions for Operating Reserves.”
- *How to handle a forced outage of a unit like Centralia that would have multiple TCHs’ picking up energy?*
 - If Centralia had a forced derate of 300 MW at XX:40 then the BPAT control area would provide 300 MW of operating reserves for 80 minutes, hence the integrated energy values would be 100 MW for the first hour and 300 MW for the second hour. BPAT would charge all of the TCHs that were picking up from Centralia for the operating reserves that were provided and in turn credit on a pro-rata basis all of the resources that supplied the operating reserves. It would be up to the TCHs to settle with Centralia after-the-fact.
- *Does the pro-rata reserve allocation program that BPAT uses round the amount of reserve to be delivered up in order to ensure compliance with the DCS standard?*
 - BPAT rounds up and down to the nearest MW.
- *How can Slice customers provide Operating Reserves?*
 - Slice customers are able to self-supply their operating reserves, contract with another slicer or a 3rd party to supply their operating reserves. However, slicers are not able to be the 3rd party supplier of Operating Reserves for a non-slice customer.
- *How will self-suppliers or 3rd party suppliers deliver their operating reserve energy when the BPAT control is being run on the Munro EMS?*
 - At this time 3rd party suppliers for self-suppliers are not called on to deliver operating reserve energy when AGC is run from Munro. However, in the future (~18 months) it is expected that the Munro EMS software will be capable of sending Operating Reserve dispatch instructions to self-suppliers and 3rd party suppliers.
- *How will the costs of providing self-supply or 3rd party supply of operating reserves be allocated?*
 - The general sense was the entity benefiting from the flexibility should pay for the start-up infrastructure costs. On-going maintenance costs would be covered by TBL.
- *How will self-supply and 3rd party supply of operating reserves be handled when “the E-tag becomes the schedule”?*
 - This question needs to be answered by BPAT programmers working on the new scheduling system.

I reviewed the current Operating Reserve Business Practice to look for points of inconsistency this document and what was discussed in the Operating Reserves Work Group. Shown below are some initial comments.

▪ **CLARIFICATION OF CURRENT OPERATING RESERVE BUSINESS PRACTICE**

(Section references made to Draft posted on August 14, 2002)

How to reflect the Scheduling Requirements in the Op. Res. Business Practice?

The current business practice focuses on the AGC requirements, as this is the primary area where changes would be required. However, it would be helpful to discuss the work that would be required to set up the necessary schedules between a TCH's self-supply resource and BPAT. Shown below are proposed changes that would clarify the scheduling requirements:

Add new Section between B. 1. c and d:

The customer is responsible for costs associated with modifying TBL's scheduling displays to reflect how a transmission customer will supply its operating reserves. TBL will absorb the costs of building the accounts associated with the new operating reserve resource and all the counterparties that it may exchange operating reserve energy with (i.e. all of the generators located in the BPAT control area (approximately 30) and all the NWPP members who could call on reserve sharing (approximately 17)).

Clarify Section E. 1 and D. 4a & 4b:

- From our work group discussions, I thought that the amount of operating reserve capacity that would need to be carried by a TCH self-supplying operating reserve would be:
 - 7% of the TCH's schedules originating that hour from thermal resources within the BPAT control area;
 - 5% of the TCH's schedules originating that hour from hydro resources within the BPAT control area and
 - 5.2% of the TCH's schedules originating that hour from federal resources within the BPAT control area.
- Furthermore, I thought that once the scheduling accounts were built and the proper pointers assigned that indicate whether the source generation was thermal or hydro, then the operating reserve capacity obligation that was to be self-provided by the TCH would automatically be calculated each hour and sent from the BPAT scheduling system to the BPAT EMS before the start of each hour;
- Section E.1. suggests that the TCH's operating reserve capacity obligation would be calculated differently from what I had heard at the work group (i.e. it suggests that the capacity obligation could change continuously within the current hour).
- Section D. 4a & 4b are confusing to me as I am not sure if they refer to the calculation of a TCH's operating reserve capacity obligation?

Clarify Section C. 10 – last sentence:

- I thought that the % deployment of a self-supplying TCH's operating reserve was a function of the MW loss in the BPAT control area divided by the total Contingency Reserve Obligation of the BPAT control area. For instance, if the Generation contingency was 200 MW and the BPAT CRO at the time was 500 MW then the self-supplying TCH would be directed to dispatch 40% of his operating reserve capacity. Whereas, if the Generation contingency was 700 MW and the CRO was 500 MW, then the self-supplying TCH would be directed to dispatch 100% of his operating reserve capacity. Section C.10 seems to suggest something different from this?

Clarify the definition of Allocation Ratio:

- Two definitions are provided:
 - Section I. 1.: "Allocation Ratio: The portion of the BPAT Control Area reserve obligation assigned or allocated to a party that is providing resources to meet its operating reserve requirements, rather than purchasing its operating reserves from BPAT".
 - Section C. 10. "The Allocation Ratio is the sum of all generator sourced transmission schedules plus the sum of all the transmission Customers' generation estimates of Control Area generation serving the customer's load responsibility divided by the total generation in the BPAT Control Area, multiplied by the WECC reserve obligation percentage."
- I think that the definitions may be compatible, however, I find Section C.10. hard to understand.

5. If the Transmission Customer chooses to self-supply or third party supply Operating Reserve Services, the resource(s) supplying such services must respond to automated signals sent from BPAT's control center calling upon those resources, and an observable response must occur, according to the technical requirements described in this business practice.
 - a. Self-supply means the Transmission Customer (Contract Holder) provides its total Operating Reserve Requirement from resources it controls.
 - b. Third party supplier means the Transmission Customer's total Operating Reserve Requirement is being met via contract with a resource operator that has agreed to meet the Customer's Operating Reserve Requirement obligation to BPAT. A third party supplier may provide service to more than one Transmission Customer. *A Transmission Customer who elects to have a 3rd party supply operating reserves may change its 3rd party supplier at the start of each quarter (i.e. Oct 1, Jan 1, Apr 1 and Jul 1) provided it gives 3 months notice and it identifies another 3rd party supplier of Operating Reserves who has already been approved by BPAT.* Such supplier must provide the aggregate total requirement of all its customers for every hour of the year.

B. Operating Reserve - Spinning and Supplemental Services

1. A Transmission Customer's Operating Reserve Requirements for Spinning and Supplemental Services must be met by one of the following three alternatives:
 - 1) purchase from BPAT; 2) self-supply; or 3) third party supply. The entire reserve requirement for both Operating Reserve - Spinning and Supplemental Services must be supplied by one of the supply options. Selection of an Operating Reserve provider is described below.
 - a. At the time a Transmission Customer makes its initial request for transmission service with BPAT, it must indicate its provider for Operating Reserves - Spinning and Supplemental Services. BPAT is the default provider under the following circumstances: a) no election was made by the Transmission Customer; b) the designated provider fails to adequately perform in proportion to its obligation, to allow BPAT to meet WECC performance standards or c) the supply arrangements the Transmission Customer has made are not comparable to purchasing Operating Reserve Services from the BPAT.

- b. ~~b.~~ The Transmission Customer may make annual elections to obtain Operating Reserve Services from either BPAT or other suppliers (i.e. a third party(ies)), or to self supply). Such election must be made over the OASIS or in writing by each July 1 for the ensuing Fiscal Year (FY) (October through September). The election shall be effective at the beginning of the following FY provided the Transmission Customer and BPAT are able to implement the required equipment and system changes in a timely manner to accommodate the request. Unless provisions for a Dynamic Schedule of the resource by BPAT already exist, it may take a year or more to put the required infrastructure in place. BPAT assumes that any customer who did not submit an election by July 1 intends to continue its existing arrangement for Operating Reserves provider through the next Fiscal Year.
- c. The Transmission Customer who elects to self-supply or have a 3rd party supply its Operating Reserve Services may change its designated supplier on Oct 1, Jan 1, Apr 1 and Jul 1 provided three months notice is given to TBL each time and that the new 3rd party supplier is on TBL's list of qualified providers.

I think it would be helpful to add a second example to the Operating Reserve Business Practice that outline the steps that would be required in order for the TCH to self-supply operating reserves.

Example of how a TCH could self-supply Operating Reserves?

If a TCH wanted to self-supply Operating Reserves in the BPAT control area during FY2004 then it would need to follow the process outlined below:

Step 1: Annual Election: No later than 1 July 2003, a TCH must send written notification of its intention to self-supply the operating reserve requirements associated with its schedules originating with generators within the BPA control area for the period of October 1 2003 – September 30, 2004.

Step 2: BPAT review of TCH's request: BPAT must determine if the TCH is capable of reliably supplying part of the BPA Operating Reserve Obligation, this may include subjecting the TCH's resources to performance tests;

Step 3: BPAT sends a letter to the TCH to advise it of BPAT's decision

Step 4 BPAT and TCH execute an Operating Agreement that would require the TCH's Operating Reserve Resources to be responsive to dispatch instructions sent by the BPAT EMS;

Step 5 TCH and BPAT make the necessary changes to their respective EMS systems.

Step 6 TBL builds all the accounts in RODS that would be required to support the TCH's self-supplying its own operating reserve (i.e. an account between the TCH's Operating Reserve resource and every generator in the BPA system would need to be set up so that when a generator in the BPA control area is forced out of service, the energy delivered by the the TCH's Operating Reserve Resource will be credited for providing pro-rata reserve energy; similarly, accounts would need to be set up between the TCH's resource and every member of the NWPP so that when the BPA control area is called on the provide pro-rata reserves to a NWPP member who has suffered a contingency they will be credited with their share of the energy provided).

Step 7 BPAT will credit the TCH's account whenever its operating reserve resources are dispatched following a generation contingency. Conversely, whenever a generator supplying one of the TCH's schedules is forced out of service, then BPAT would charge the TCH for the operating reserves supplied from the BPAT control area to backup the TCH's schedule. It is the responsibility of the TCH to recover the costs of the operating reserve charges from the generator it had contracted with.